Strategy Research Project

New Defense Priorities and the Defense Industrial Base

by

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NEW DEFENSE PRIORITIES AND THE DEFENSE INDUSTRIAL BASE

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As the United States (U.S.) defense priorities change in the coming decade and defense resources decline, the U.S. Government and the Department of Defense (DoD) must proactively shape the American defense industrial base and ensure the technologies and capabilities critical to military success are protected. After the end of the Cold War, the DoD budget declined sharply and facilitated a major contraction of the defense industrial base which saw over 50 major defense suppliers consolidated into only a half dozen, dominant defense firms. The U.S. cannot allow its industrial base to disintegrate as it did in the early 1990s. The Government needs to decidedly determine the future strategy of the military and appropriately invest in the critical technologies or capabilities that enhance this strategy. While ruthlessly investing, or divesting, appropriately, the DoD can exploit globalization and employ existing but little used laws and regulations to ensure the survival of these critical technologies and capabilities.

NEW DEFENSE PRIORITIES AND THE DEFENSE INDUSTRIAL BASE

As a strategic asset the defense industrial base of the United States (U.S.) is vital to our long-term ability to provide necessary equipment and services to maintain our national security objectives. A consequence of the declining size of our military forces in the last two decades is that our national military strategy has increasingly relied on superior technology and the most advanced capabilities available in the world to ensure that our security objectives are realized. A principal enabler of this strategy is our defense industrial base. The industrial might of the U.S. provides our military with the ability to sustain, year after year, the technological edge that discourages adversaries from contesting our goals or preventing our dominance when deterrence fails. As the U.S. defense priorities change in the coming decade and defense resources decline, the U.S. Government and the Department of Defense (DoD) must proactively shape the American defense industry and ensure the technologies and capabilities critical to military success are protected. The Government can shape the defense industrial base by developing a comprehensive strategy that provides guiding principles that defense companies can rely upon to plan for the future. During the past several decades the DoD has relied on market forces to create, shape, and sustain the industrial, manufacturing, and technological capabilities in the industrial base.[1] The Government's current free market approach to the defense industry must shift toward enacting policies that directly support the National Security Strategy and support priorities that ensure our technological dominance in the decades to come.

The defense industrial base is the combination of people, institutions, technological know-how, knowledge and facilities used to design, develop, manufacture,

and maintain the weapons and supporting defense equipment needed to meet the U.S. national security objectives.[2] The base has three broad components: research and development, production, and maintenance and repair, each of which includes public and private sector employees and facilities. It can also be divided into several tiers: prime contractors, major subcontractors, and lower tiers that include suppliers of parts and raw materials.[3]

The modern defense industrial base is substantially different than its past manifestations in size and capability. It continues to decrease in numerical size and in economic scope relative to the U.S.' economy overall. The defense industrial complex President Eisenhower referenced in 1961 was sprawling. During his tenure in office defense spending ranged from 9 to 13 percent of gross domestic product compared to about four percent today.[4] Nearly 60 percent of the Nation's industrial research and development investment was in the defense sector and today that number is less than 10 percent.[5] Then, the defense industry was the largest industrial sector of the U.S. economy, larger than automobiles, steel or oil. Today, in contrast, the annual revenue of the major oil companies is nearly four times that of major defense firms. Additionally, the annual combined revenue of the five largest American defense firms is only about half that of Wal-Mart.[6] However, this reduction in the defense industrial base over the past 50 years has not resulted in significantly less reliance by today's military on its capabilities and technologically advanced products.

Reliance on advanced technology has risen sharply since the end of the Cold War. The size of the Army decreased by 38.5 percent after the Cold War[7] which forced technology to replace manpower. We no longer rely on a large standing army with large

numbers of weapon systems to defend against the Warsaw Pact. Instead we increasingly rely on fewer soldiers to respond to smaller scale contingencies of lesser magnitude in more diverse locations. With the current downsizing of the Army to near 1990s levels, we can expect this trend of having fewer soldiers, with increasingly high tech weapons, to continue into the foreseeable future. That is why it is increasingly important to ensure that we retain our technological edge.

Trying to maintain our technological superiority in an era of declining budgets leads to a situation known as structural disarmament. Structural disarmament is "what happens when a nation's defense budget, plus exports, provides too small a market to bring armament development and production costs down to a politically affordable level."[8] The roots of structural disarmament lie in the increased technological sophistication of weapons systems. Technological improvements cost money, making each new generation of weapon system much more expensive. By increasing the unit cost of weapons, fewer systems can be produced and purchased.[9] The U.S. has historically felt the effects of structural disarmament by developing each new weapon to be more advanced that the last. In his book, *Augustine's Laws*, Norm Augustine uses the chart in Figure 1 to demonstrate the exponential growth in aircraft cost since airplanes were first purchased by the Army.

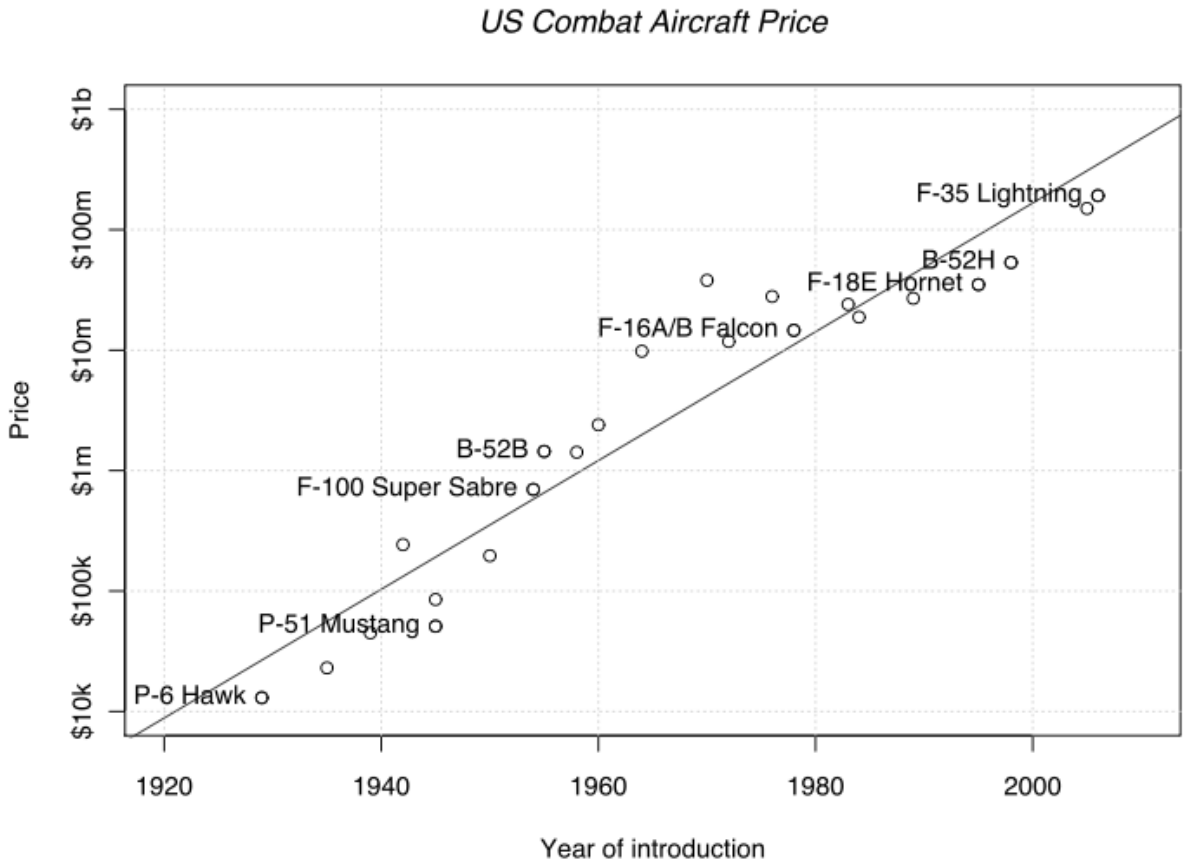

Figure 1. Logarithmic plot of U.S. combat aircraft prices as a function of time to demonstrate Augustine's Law Number XVI.[10]

The incremental effects of structural disarmament over the past few decades have been manageable, but now that we are anticipating a significant reduction in the defense budget, the Government must prevent a rapid decline in our ability to produce enough of the technological weapons required to preserve dominance while maintaining our industrial capabilities.

In order to retain our technological edge we must ensure that the defense industrial base remains robust and capable of providing the most advanced equipment to our military in an era of increasing global competition. As the defense budget decreases and U.S. industry turns to commercial sectors to remain competitive and

sustain profitability, the DoD must develop a strategy that will prevent the erosion of industry's ability to support national security objectives.

After the end of the Cold War, the Defense Department budget declined 25.3 percent from $431 billion dollars in 1990 to $322 billion dollars in 2000 (in constant 2003 dollars).[11] This reduction in funds available for conducting research and purchasing weapons and equipment resulted in a major contraction of the defense industrial base. Beginning in the early 1990s the defense industry started an aggressive series of mergers and acquisitions that was strongly encouraged by the government. William Perry, who was then Deputy Secretary of Defense, explicitly described the absolute need for consolidation at the famous "last supper" held with industry executives.[12] The government actually incentivized this consolidation of larger defense contractors by allowing consolidation costs to be reimbursed as overhead costs, as long as the savings to the government could be projected. These mergers and acquisitions were occurring both horizontally and vertically. Horizontal consolidation refers to the absorption into a single firm of one or several firms involved in the same level of production. Vertical integration refers to the addition of supplier products into a company that also makes products at a higher tier.[13]

Major defense contractors generally pursued three strategies in their mergers and acquisitions: buying relatively small defense units from diversified U.S. conglomerates (like General Motors and TRW); acquiring defense related businesses outside of aerospace and electronics (such as information technology or shipbuilding); or expanding abroad by buying foreign defense firms.[14]

In less than a decade, what had been over 50 major defense suppliers (prime contractors and large subcontractors) was consolidated into only a half dozen, dominant defense firms.[15] Figure 2 shows the effects of consolidation within the U.S. Aerospace industry where 26 companies consolidated into four. Another extreme example of consolidation was in the tactical missiles sector where a total of 13 firms were consolidated into three.[16]

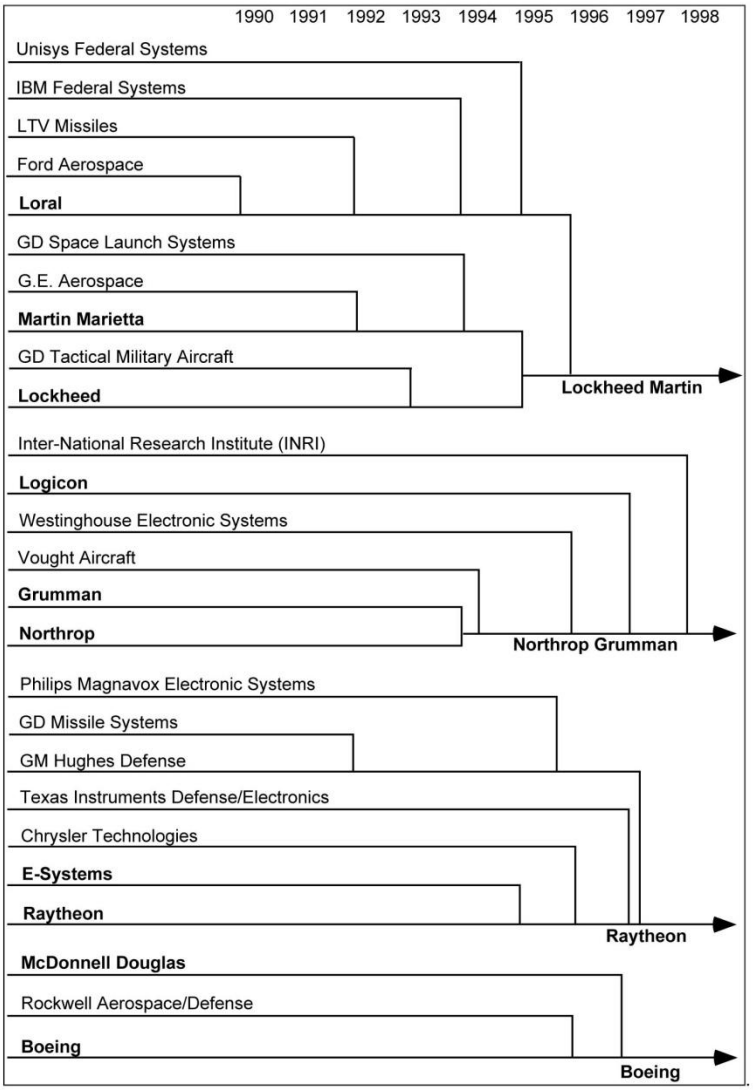

Figure 2. Consolidation of the U.S. Aerospace industry from 1990-1998[17]

The Justice Department and Federal Trade Commission were increasingly concerned about the declining number of firms available for competition, but they allowed the consolidation due to the obvious shrinkage in the available business, and the acknowledged uniqueness of the defense market structure. Regulators reasoned that if the only customer (the DoD) was satisfied with the limited competition, and if the cost of maintaining additional potential suppliers was prohibitive, they would not object to the consolidation on antitrust grounds. The Defense Department assured them (as Secretary Perry had explicitly stated) that "we will only allow consolidation if it reduces costs to the DoD, and if adequate competition will still exist after the merger or acquisition."[18] The policy of encouraging acquisitions and mergers ended in early 1997 when the DoD, with a new Undersecretary of Defense for Acquisition, Technology and Logistics, Dr. Jacques Gansler, decided that it had gone far enough and blocked the merger of Lockheed Martin with Northrop Grumman which would have reduced the number of airframe suppliers form three to two.[19]

The root cause of the contraction was not merely the reduction in the defense budget but also a result of overcapacity in defense industries and the rise of globalization. Although globalization and overcapacity issues were looming and would have eventually caused a contraction even if the defense budget had stayed level, the decline in the defense budget provided a catalyst that hastened the decline.

In the U.S. defense industry, increased globalization at the end of the Cold War began as a result three primary factors. The first was defense procurement policies that did little to encourage commercial investment in improving manufacturing capacity or to increase internal efficiency within commercial contractors.[20] Government procurement

policies which focus on increasing competition and rely on short term contracts result in contractors being incentivized to maximize short term profits on each contract. This inefficiency with regards to long term capital investment in manufacturing technology caused companies to seek business elsewhere, often into new markets overseas, in order to reduce costs by improving efficiency and increasing production quantities of a manufactured item. Longer production runs increase efficiency and significantly reduce production costs.

Second, the rapidly rising cost of weapons systems pushed companies to enter overseas markets through the forming of joint ventures and strategic alliances with the purpose of entering into new markets and increasing production runs.[21] In some cases the increased sharing of development costs and the combining of production lines led to transatlantic programs from radios (MIDS) to missile defense (MEADS) to aircraft (Joint Strike Fighter).[22] Additionally, as countries recognized the risk of falling behind technologically due to increasing costs caused by increasing complexity of weapon systems (structural disarmament) they considered the overseas partnerships to be less risky.

This change in the calculus of industrial risk management led to the third cause of increased globalization. Although self sufficiency has generally been a hallmark of national security everywhere, most counties recognized that the benefits of advanced technology outweighed the risks of global industrial partnerships.

Throughout history certain countries have developed advantages in manufacturing that have provided them with benefits that could not be economically overcome by others, e.g. optics from Germany or semiconductors from Japan. The

investment required to achieve the technological and manufacturing capability to compete with the best producers in the world market is not economically feasible. Additionally, interrelated industrial partnerships and increasingly strong global commercial alliances reduce the security risk of not having access to advanced technology not just in the U.S. but with our allies worldwide.[23] As Stephan Brooks puts it most succinctly “globalization of production leads to great power peace.”[24]

The security risk associated with relying on technology from overseas was further mitigated by another post-Cold War realization: in the future the U.S. was unlikely to enter into a conflict unilaterally. It became increasingly clear after the Cold War that the U.S. would not enter any future military operations without a coalition of allies. With the battlefield made up of mutually interdependent, interconnected, distributed sensors and shooters from multiple counties, it was clear that it would be in the U.S. interest to ensure that each county involved in the coalition would have the best possible technology, and that all equipment had to be designed and tested to be interoperable among coalition partners in order to be militarily effective.[25] Thus, critical military technology needed to be shared among U.S. allies and in 2001 the Defense Trade and Security Initiative was announced which increased technology-sharing with potential coalition partners. A clearly stated condition to protect against further spread of military technology outside U.S. alliances was that each county needed to effectively implement strict controls over third-party transfers of the technology.[26]

The overcapacity that existed in the early nineties was largely seen as a result of the increases of the defense budget during the Reagan presidency. However it can actually be traced back to World War II. After the end of the war, in an attempt to

establish indigenous defense industries and repair the shattered economies of Germany and Japan, the U.S. Government embarked in a program of technology transfer to our erstwhile enemies. Later through the 1950s, the U.S. entered into agreements with nineteen additional countries to increase their manufacturing capability and develop their indigenous defense capabilities.[27] With the rise of NATO, the market remained large enough to support the increased manufacturing capabilities around the world and still have enough internal and external demand for U.S. companies. As foreign capabilities increased, and there was less demand for U.S. weapons and equipment from overseas, the Vietnam War continued to provide demand for U.S. companies. Continued Cold War hostilities increasingly fueled demand in the 1970s as NATO allies continued to arm themselves from a mix of armaments from their own industries and U.S. weapons. Overcapacity still remained manageable during the 1980s as the defense budgets were increased during the Reagan presidency, however, after the end of the Cold War and Operation Desert Storm, the call for the “peace dividend” by voters was loud and clear to U.S. politicians.

The call from voters today for reduced defense expenditures may be too premature to be called a “peace dividend,” but the message is again, loud and clear. In the next decade, with operations in Iraq and Afghanistan winding down and new defense priorities being established, we can again expect to see the size of our military decrease along with substantial reductions in funding. As a result of the Budget Control Act of 2011, the DoD will reduce its budget by an estimated $487 billion over the next ten years.[28] Even deeper cuts can be expected as a result of the failure of the Senate Joint Select Committee (The Super Committee) to come to an agreement to reduce the

country's deficit by an additional 1.2 trillion dollars. The failure of the Joint Select Committee is forcing the sequestration process which is expected to significantly reduce defense spending by an additional 500 billion dollars.[29]

During this era of declining resources, the Defense Department's demand for new weapons and equipment will likewise decline. As a result of the reduction in defense spending, competition for resources within the defense industrial base will intensify as pressure from global competition will reduce potential market share in commercial sectors. In order to maintain our ability to meet our national security objectives during and after the forthcoming drawdown, we must ensure that we continue to maintain our supremacy in technological capabilities and not allow our industrial base to contract from its current size and capability.

Currently, the defense industrial base is generally healthy and capable of fulfilling the requirements placed upon it by the DoD. As defense budgets have increased over the past ten years, the industrial base has thrived and enjoys stable profitability and good margins. Although defense industry stock prices remain depressed due to the current economic difficulties in all sectors of the economy, this should not be construed to mean weakness in their capabilities. As a whole, the defense industrial base is much stronger today than a decade ago.[30]

The change in the way the military has conducted the wars in Iraq and Afghanistan with the emphasis on information technology, intelligence, surveillance, communication and related technologies has also had a significant effect on the defense industry. Although technological change has always played a role in defense industry developments, the pace of change in the past ten years has been substantial

and in fields (mentioned above) that are not as technologically mature.[31] This has allowed numerous small, high-tech firms to enter the defense industrial base. With their ability to adapt quickly to changing environments and shifts in technological advancements, these firms have overcome traditional barriers to entry into the defense market. New, non-traditional defense companies have offered novel, innovative manufacturing methods and management processes that have refreshed the defense industry and allowed it to prosper in ways that are disproportionally better than what would be expected with just an increase in the defense budget.

Another development that has helped the defense industry in the past ten years is the establishment of the Department of Homeland Security. Many traditional defense industries found new markets for their products in providing security and anti-terrorism products to this new government agency.

Companies within the defense industrial base are also behaving more like commercial companies today than they have in the past. Partially as a result the Defense Reform Act of 1997, which was enacted to encourage the DoD to become more innovative, make quicker decisions and improve defense program development, many companies have now come to view themselves as enterprises whose mission is to deliver products and services that enhance profits and shareholder value. Although the Defense Reform Act emphasized reforming the DoD rather than the defense industrial base, its underlying rationale was to emulate best commercial practices. As a result of government legislation for improved business practices among government contractors, companies now are generally more focused on near-term profitability than

long-term strategies that primarily support government requirements at the expense of efficiency and innovation.[32]

Although the DoD requires companies comprising the defense industrial base to be reliable, cost-effective, and self sufficient, this is becoming more difficult in the uncertain environment of declining budgets and indeterminate requirements. The changing nature of global threats and force structures is challenging defense planners who cannot clearly foresee future requirements.[33] The current environment of uncertainty in determining defense requirements is affecting the ability of defense companies to adequately plan their long-term future.

Another current challenge that the defense industrial base faces is increasing competition from overseas. The rapid increase in the complexity of systems fuels a correspondingly rapid increase in cost, which leads to globalization as prime contractors search overseas for cheaper sources of supply or superior technology. This results in the increase in the number of foreign suppliers that a company must turn to for their subcomponents and parts as well as changing relationships when a foreign owned company can offer a significant price or technological advantage. When a foreign owned subcontractor is able to offer a superior technology or cheaper part, the subcontractor assumes a competitive advantage that increases their value to the larger defense firms and reduces opportunities for competition.

The pressure to increase their global supply chain or seek foreign technology has caused companies to completely rethink their role in the global market. This pressure has been further increased by the global financial markets as well. As countries have removed capital controls, investors large and small have more freedom to send their

capital abroad and invest in foreign markets. As a result of this, defense companies in the U.S. are now partially owned, through the stock market, by overseas investors. For example, Lockheed Martin, the top defense company in the U.S. has about 7.2 percent of its stock owned by foreigners.[34]

As companies are forced to expand global sales in order to remain competitive in the industry, they also find political pressure to procure components or move production to overseas markets. In many countries the entry fee into their market for military sales is the requirement to produce all or part of an overall system in the country where sales are made. This is especially pertinent to defense firms, where production abroad may be necessary to win contracts and sell products in other countries. The defense industry, and those sectors related to it like aerospace, electronics, and information technology, is among the more prominent sectors that are driven by these forces.

Based on these pressures it should not be too surprising that the U.S. defense industry which long has focused on its relationship to the U.S. Government, and has a much higher percentage of its assets, revenues, and employment based in the U.S., is shifting its focus to the world market.

The imperative to globalize in order to maintain the technological edge has another downside which affects smaller companies based in the U.S. These smaller companies, who once relied on larger defense firms in the U.S., now face global competition to survive. Although this impact affects mostly second and third tier companies in the parts-supplier sector, their combined contribution to the defense industrial base is greater than that of the prime contractors.

Another consequence to the increase in globalization is a corresponding increase in the demand for natural resources and raw materials. Global economic growth in recent years has increased the demand for commodities such as oil, copper, aluminum and titanium. The defense industry, which uses many of these commodities, particularly specialty metals, has borne increased costs as a result of the competition with other industries for supplies. In response to these trends, China has opted to increase trade and investments with Africa, which is home to many minerals used in industrial production. China-Africa trade has nearly quadrupled since 2001 catapulting China to become the continent's third biggest trading partner behind the U.S. and France. To the extent that China may be a national security concern for the U.S. over the course of the 21st century, its efforts to secure supplies of oil, raw materials and other commodities on the world market will impact costs for U.S. defense firms.[35]

In previous reports to congress on the defense industrial base, the DoD has stated that that the ability to meet future national security needs will depend largely on the ability of individual companies to shift from defense to commercial production, and then back again, as required.[36] That is becoming increasingly difficult since the defense sector is not only much smaller in size than the commercial sector, but it also produces a much smaller and enormously more sophisticated product line.[37] In some defense sectors where a company's defense portion of their overall revenue is small, a company may be able to shift assets to the commercial sector where they can make up for declining government sales. This is also true in sectors where commercial demand for their products remains robust. However, in a weak economy, even a small loss in revenue may be enough to force a company out of business. In the early 1990s during

the height of the defense company consolidation mentioned earlier, several large firms such as General Electric and IBM sold their government product lines to competitors and exited the government market.

Commercial companies generally rely on huge production runs to maintain efficiency but defense sales more often rely on much smaller production runs that cannot maintain the same efficiencies. Major items of equipment are highly sophisticated, extraordinarily complex to manufacture, and have little in common with commercial products other than the incorporation of commercial components, mainly electronics. In World War ll many commercial firms were pressed into the war effort to produce equipment that had more similarities to their civilian counterparts than occurs today. Chrysler was able to produce 40,000 M4 Sherman tanks powered by commercial Ford V8 engines with only slightly retooled commercial assembly lines.[38] The increase in robotics and non-human assembly devices makes that impossible today. In 2011 Ford Motor Company produced over 2 million cars and trucks in the U.S.[39] but today's defense industry looks less like Ford and more like Ferrari which produced 6,500[40] mostly hand made vehicles. Similarly, in the years between 1942 and 1945 American Industry produced over 200,000 military aircraft to support the Services in World War ll. Between 2001 and 2004, the first three years of the current period of conflict, the modern defense industry produced fewer than 250 aircraft.[41] Without the capabilities to manage huge production runs required to remain competitive in the globalized commercial marketplace of today, defense companies have to rely on the policies and financial security of the U.S. Government to remain viable.

To ensure that the industrial base remains viable in an era where it cannot survive by merely moving from the defense sector to the commercial sector, the U.S. Government must develop a comprehensive policy that provides strategic guiding principles that defense companies can rely upon to plan for the future and ensure their long-term resiliency. Before the Government can develop policies upon which industry can rely, it needs to assess our national long-term strategy and determine where our priorities lie. This prioritization has begun with the release of Secretary of Defense Panetta's strategic guidance "Sustaining U.S. Global Leadership: Priorities for 21st Century Defense" in January 2012. Although the ten primary "Missions of the U.S. Armed Forces" listed in the document are not specific enough for industry to use as planning guidance, the details that will be forthcoming in the near future will certainly shape the industrial environment for the next several years.

In light of current circumstances, the natural inclination in both Congress and the Pentagon will be to concentrate on identifying individual programs to cut or eliminate. The first question however, should be not what to cut but what to keep. Given the complex range of security challenges the U.S. is likely to face over the next 20-30 years, the Defense Department will need to preserve or create specific core capabilities to preserve our military superiority. The question of what to keep, rather than what to cut, is the fundamental strategic issue that needs to be given top priority. It is imperative that a sound strategy for preserving the critical elements of the U.S. defense industrial base be developed. The question of "what elements of the industrial base should the Defense Department continue investing in" is essential to answer.[42]

In his recent testimony before the House Armed Services Committee, Barry Watts of the Center for Strategic and Budgetary Assessments offers a strategy that the Government should adopt: to focus on critical sectors of the defense industry. He states that "Strategies are fundamentally about choice…especially in terms of resource allocation."[43] He goes on to explain that the first step in determining the strategies is to assess the main challenges to American security over the next several decades and to link those challenges to critical sectors of the defense industry needed to field the weaponry and capabilities to address these challenges. The Center for Strategic and Budgetary Assessments suggests a plausible guiding policy for sustaining the U.S. defense industrial base as a national asset and enduring source of advantage. Their suggested policy states:

> The United States' defense industrial base strategy should ensure the preservation of those few sectors that are currently critical to American national security, adding over time any emerging sectors that become critical, and ruthlessly underfunding or jettisoning any sectors that cease to be critical.[44]

In other words, the overarching policy would be the adaptive sustainment of those elements of the defense industrial base that are truly important to retain.[45]

This approach for the government to focus on protecting specific critical technologies or capabilities, at the expense of lesser priorities is exactly what the Government needs to do to ensure that our industrial base remains viable and capable of providing the equipment and weapons needed to enable the "Missions of the U.S. Armed Forces" established by Secretary Panetta.

In order to focus on specific technologies or capabilities, the Government has to abandon its current free market approach to managing the defense Industrial Base. The Government has historically followed a free market approach to its relationship with the

defense industrial base, limiting its influence on the industry through what goods and services it buys. This approach has been not just acceptable, but it has been the actual policy to put the responsibility on the individual industries to respond to changes in the government's demands for their products.[46]

Another consideration not recognized by the free market approach is that the federal government is often the only customer for the weapon systems that it buys. This consideration places the defense industrial base in a monopsony market. A monopsony is a market form in which only one buyer faces many sellers. The government's power within this monopsonistic system allows it to dictate terms of contracts, regulate profits, determine product design, and control other significant factors. This often requires a company to design its business model to specifically serve the needs of the government and substantially reduces its options when attempting to develop business outside of the U.S. Government defense sector.

In its 2011 Annual Industrial Capabilities Report to Congress, the DoD continues to recognize its free market approach to, "…rely on market forces to create, shape, and sustain the industrial, manufacturing, and technological capabilities in the industrial base intervening only when necessary to sustain essential defense capabilities."[47] The report also recognizes that economic constraints "will have significant impacts on the defense industrial base."[48]

The Center for Strategic and Budgetary Assessments disagrees with the Government approach to dealing with the defense industry as a free market and states,

> It is… a serious misunderstanding of the realities of weapons acquisition in the United States to think that the U.S. defense industry operates like a normal free market. A classic free market involves many small buyers and many small suppliers, and competition among buyers and suppliers drives

> prices toward stable, economically efficient equilibrium levels. None of these features resemble the way in which the U.S. defense industrial base functions. Consequently, incremental regulatory and statutory adjustments to defense acquisition based on the presumption that the defense industry operates like a normal free market are not only unlikely to improve efficiency, but have often made things worse.[49]

The market analysis presented by the Center for Strategic and Budgetary Assessments more accurately portrays the realities of the defense industry today and in light of the "economic constraints," mentioned in the Defense Department's Report to Congress, now is the time to increase the "intervention required to sustain essential defense capabilities."[50]

Although the concept of the Government intervening in the defense industrial base may sound antithetical to the American idea of free markets, the DoD actually does so every time it determines a future strategy. With each big contract award based on national security needs, the Government shapes the defense industry and there are winner and losers. With the increased use of ballistic missiles and unmanned aerial vehicles, the U.S. Government shapes the aerospace industry. When the Army determines whether it needs a new combat vehicle or whether it can get by with upgraded existing vehicles, it shapes the armored vehicle industry. What the Government needs to do now is to decidedly determine the future strategy of the military and appropriately invest the diminishing resources available to achieve the maximum capability. We cannot continue to invest everywhere, with too numerous priorities and accept mediocre weapon systems that are perhaps unnecessary.

Mr. Brett Lambert, the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy is currently conducting multiple assessments to better understand the defense industrial base. In a recent presentation, he discussed "how we

in the DoD are trying to better understand the [defense industrial] base to enable us to identify the critical capabilities so vital to our continued commitment while fielding the best systems possible for our warfighters at the most affordable price to the taxpayers."[51] He emphasized the need to "make difficult decisions early" and that "it is impossible to generate needed savings through pure efficiencies alone."[52] His office's assessments, referred to as the sector-by-sector, tier-by-tier (S2T2) reviews will develop a baseline of data across a wide swath of industry, including aircraft, shipbuilding, space, ground vehicles, missiles, missile defense, services and information and communication technology. The systematic character of this effort contrasts with previous assessments that focused on particular programs and individual products.[53]

These S2T2 assessments can be used as a first step in matching the DoD's new strategic priorities with current industrial capabilities. This matching of requirements and capabilities can assist the Defense Department in determining the appropriate industrial investment strategy. The Department can continue to invest in robust industry sectors that support the new priorities, increase investment where necessary to enhance industrial capabilities or divest in sectors that will have limited contribution to new defense priorities.

Increasing investment in industrial sectors deemed critical to the new defense priorities can be achieved in several ways. The first is for the DoD to develop requirements for weapon systems that are more advanced than the ones currently in the inventory today. This approach will provide Government research and development funding to companies to allow them to continue developing more advanced systems, and remain current in the state of the art of a particular technology. If there is not a

requirement for a more technologically advanced system, or if the state of the art is current, the Defense Department can increase the use of Title III of the Defense Production Act to allow investment to modernize production facilities. The Defense Production Act (50 U.S.C. App. § 2061 et seq.) created in 1950 and most recently reauthorized in 2009, is a program specifically designed to create maintain, modernize, protect, expand, or restore industrial capabilities required for national defense.[54] An additional use of the Defense Production Act can be to accelerate the transition of technologies from research and development to affordable production and insertion into defense systems.[55] A third technique to increase industrial capabilities in a particular technological sector is by use of university research grants. The Assistant Secretary of Defense for Research and Engineering manages several grant programs that can be used to target certain technologies or industrial sectors to increase the knowledge and capabilities of individual researchers or increase the number of students specializing in needed disciplines. By increasing the knowledge base through increased research opportunities, the Government can shape particular sectors and realize an overall increased capability.

The S2T2 assessments can also assist in determining where we need to accept risk by divesting in industrial capabilities that can be found outside the U.S. As mentioned earlier, globalization has had a significant effect on the defense industrial base. Instead of looking at increased globalization as a challenge to American industrial superiority that must be overcome, the Government as a whole and the Defense Department specifically must embrace increased globalization and look for ways to benefit from it. The DoD has recognized the irreversible trend of globalization and states

in the 2011 Report to Congress that it “cannot avoid or wall itself off from globalization” and that “globalization of our market is not an option – it is a reality.” It further states that “Our utilization of, for lack of a better term, “non-heritage” firms is essential for nearly all of the systems upon which the Department relies. The Department is committed to continue opening our markets while at the same time striking the appropriate balance with security concerns.”[56]

The Defense Department needs to take this one step further. Instead of merely recognizing or even welcoming globalization and the increased use of overseas suppliers, the Department needs to actively encourage U.S. companies to partner with overseas firms to achieve cost savings and increased opportunities for exports. By offering incentives to partner with U.S. allies, the Government can increase the benefits of globalization to U.S. defense companies and realize the advantages of overseas markets. Brett Lambert mentioned in his presentation that there are four advantages to buying in a global environment in addition to increasing export opportunities. “First, it increases competition and reduces costs. Second, it facilitates the introduction of new technologies and concepts. Third, it often supports coalition war fighting efforts; at a minimum, it lessens the challenges of operating across coalition partners. Fourth, it allows us to benefit from the lessons learned and efficiencies gained in other nations that have faced difficult financial circumstances and were forced to implement their own “Better Buying Power” initiatives.”[57]

To achieve the most benefit from globalization, the involvement of the U.S. Congress is also required. Modification of the Buy American Act (41 USC Sec 10a-10d) is necessary. As currently written the Buy American Act requires the Government to buy

domestic “articles, materials, and supplies” when they are acquired for public use unless a specific exemption applies. Articles, materials and supplies are considered domestic if they have been manufactured in the U.S. from components, “substantially all” of which have been mined, produced, or manufactured in the U.S. “Substantially all” means that the cost of foreign components does not exceed 50 percent of the cost of all components.[58] The few exemptions that apply only affect a small number of acquisitions, so a change in the Act is required to achieve substantial results.

American industry is a strategic asset that has sustained the American Armed Forces through every modern conflict and was credited by Norm Augustine in 1997 for “winning the cold war.”[59] Its contribution to the future of American security cannot be overstated and as the DoD reshapes the military for future conflicts while defense budgets decrease, the effects of these changes on the U.S. Defense industrial base must be considered. New defense priorities need to include clear direction to American industry as they continue to be refined by the Defense Department and proactive, decisive steps need to be taken to ensure that the industrial base is restructured to ensure its success in providing for future victory. The policies developed in support of the emerging defense priorities need to ensure the effective restructuring of the defense industrial base to ensure industry sectors critical to the future success of the military are unconditionally resourced and opportunities realized by increased globalization are aggressively fulfilled.

Endnotes

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